

A	B	C	D	E	F	G	H	I	J	K									
1	<b>UCL Statistics for Data Sets with Non-Detects</b>																		
2	#VALUE!																		
3	User Selected Options	#VALUE!																	
4	Date/Time of Computation	6/12/2018 2:43:02 PM																	
5	From File	ProUCL Input Nonporous Surfaces-1 8 ft or lower (060518).xls																	
6	Full Precision	OFF																	
7	Confidence Coefficient	95%																	
8	Number of Bootstrap Operations	2000																	
9	#VALUE!																		
10	Total PCBs	#VALUE!																	
11	<b>General Statistics</b>																		
12	Total Number of Observations	29		Number of Distinct Observations															
13	Number of Detects	5		Number of Non-Detects															
14	Number of Distinct Detects	5		Number of Distinct Non-Detects															
15	Minimum Detect	0.78		Minimum Non-Detect															
16	Maximum Detect	2.2		Maximum Non-Detect															
17	Variance Detects	0.305		Percent Non-Detects															
18	Mean Detects	1.252		SD Detects															
19	Median Detects	1.1		CV Detects															
20	Skewness Detects	1.786		Kurtosis Detects															
21	Mean of Logged Detects	0.159		SD of Logged Detects															
22	#VALUE!																		
23	<b>Normal GOF Test on Detects Only</b>																		
24	Shapiro Wilk Test Statistic	0.814		<b>Shapiro Wilk GOF Test</b>															
25	5% Shapiro Wilk Critical Value	0.762		Detected Data appear Normal at 5% Significance Level															
26	Lilliefors Test Statistic	0.337		<b>Lilliefors GOF Test</b>															
27	5% Lilliefors Critical Value	0.396		Detected Data appear Normal at 5% Significance Level															
28	<b>Detected Data appear Normal at 5% Significance Level</b>																		
29	#VALUE!																		
30	<b>Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs</b>																		
31	Mean	1.056		Standard Error of Mean															
32	SD	0.265		95% KM (BCA) UCL															
33	95% KM (t) UCL	1.219		95% KM (Percentile Bootstrap) UCL															
34	95% KM (z) UCL	1.213		95% KM Bootstrap t UCL															
35	90% KM Chebyshev UCL	1.343		95% KM Chebyshev UCL															
36	97.5% KM Chebyshev UCL	1.653		99% KM Chebyshev UCL															
37	#VALUE!																		
38	<b>Gamma GOF Tests on Detected Observations Only</b>																		
39	A-D Test Statistic	0.437		<b>Anderson-Darling GOF Test</b>															
40	5% A-D Critical Value	0.68		Detected data appear Gamma Distributed at 5% Significance Level															
41	K-S Test Statistic	0.299		<b>Kolmogorov-Smirnoff GOF</b>															
42	5% K-S Critical Value	0.358		Detected data appear Gamma Distributed at 5% Significance Level															
43	<b>Detected data appear Gamma Distributed at 5% Significance Level</b>																		
44	#VALUE!																		
45	<b>Gamma Statistics on Detected Data Only</b>																		
46	k hat (MLE)	7.825		k star (bias corrected MLE)															
47	Theta hat (MLE)	0.16		Theta star (bias corrected MLE)															
48	nu hat (MLE)	78.25		nu star (bias corrected)															
49	MLE Mean (bias corrected)	1.252		MLE Sd (bias corrected)															
50	#VALUE!																		
51	<b>Gamma Kaplan-Meier (KM) Statistics</b>																		
52	k hat (KM)	15.84		nu hat (KM)															
53	Approximate Chi Square Value (918.70, $\alpha$ )	849.4		Adjusted Chi Square Value (918.70, $\beta$ )															
54	95% Gamma Approximate KM-UCL (use when n>=50)	1.142		95% Gamma Adjusted KM-UCL (use when n<50)															
55	#VALUE!																		
56	<b>Gamma ROS Statistics using Imputed Non-Detects</b>																		
57	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLS																		
58	GROS may not be used when kstar of detected data is small such as < 0.1																		
59	For such situations, GROS method tends to yield inflated values of UCLs and BTBs																		
60	For gamma distributed detected data, BTBs and UCLs may be computed using gamma distribution on KM estimates																		
61	Minimum	0.467		Mean															
62	Maximum	2.2		Median															
63	SD	0.38		CV															
64	k hat (MLE)	8.769		k star (bias corrected MLE)															
65	Theta hat (MLE)	0.123		Theta star (bias corrected MLE)															
66	nu hat (MLE)	508.6		nu star (bias corrected)															
67	MLE Mean (bias corrected)	1.08		MLE Sd (bias corrected)															
68	#VALUE!	#VALUE!		Adjusted Level of Significance ( $\beta$ )															
69	Approximate Chi Square Value (457.31, $\alpha$ )	408.7		Adjusted Chi Square Value (457.31, $\beta$ )															
70	95% Gamma Approximate UCL (use when n>=50)	1.209		95% Gamma Adjusted UCL (use when n<50)															
71	#VALUE!																		
72	<b>Lognormal GOF Test on Detected Observations Only</b>																		
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A	B	C	D	E	F	G	H	I	J	K						
74	Shapiro Wilk Test Statistic			0.909	<b>Shapiro Wilk GOF Test</b>											
75	5% Shapiro Wilk Critical Value			0.762	Detected Data appear Lognormal at 5% Significance Level											
76	Lilliefors Test Statistic			0.276	<b>Lilliefors GOF Test</b>											
77	5% Lilliefors Critical Value			0.396	Detected Data appear Lognormal at 5% Significance Level											
78	<b>Detected Data appear Lognormal at 5% Significance Level</b>															
79	#VALUE!															
80	<b>Lognormal ROS Statistics Using Imputed Non-Detects</b>															
81	Mean in Original Scale			1.084	Mean in Log Scale											
82	SD in Original Scale			0.348	SD in Log Scale											
83	95% t UCL (assumes normality of ROS data)			1.194	95% Percentile Bootstrap UCL											
84	95% BCA Bootstrap UCL			1.201	95% Bootstrap t UCL											
85	95% H-UCL (Log ROS)			1.203	#VALUE!											
86	#VALUE!															
87	<b>UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed</b>															
88	KM Mean (logged)			0.0294	95% H-UCL (KM -Log)											
89	KM SD (logged)			0.214	95% Critical H Value (KM-Log)											
90	KM Standard Error of Mean (logged)			0.0922	#VALUE!											
91	#VALUE!															
92	<b>DL/2 Statistics</b>															
93	<b>DL/2 Normal</b>			<b>DL/2 Log-Transformed</b>												
94	Mean in Original Scale			1.043	Mean in Log Scale											
95	SD in Original Scale			0.23	SD in Log Scale											
96	95% t UCL (Assumes normality)			1.116	95% H-Stat UCL											
97	<b>DL/2 is not a recommended method, provided for comparisons and historical reasons</b>															
98	#VALUE!															
99	<b>Nonparametric Distribution Free UCL Statistics</b>															
100	<b>Detected Data appear Normal Distributed at 5% Significance Level</b>															
101	#VALUE!															
102	<b>Suggested UCL to Use</b>															
103	95% KM (t) UCL			1.219	95% KM (Percentile Bootstrap) UCL											
104	#VALUE!															
105	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.															
106	Recommendations are based upon data size, data distribution, and skewness.															
107	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).															
108	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.															
109	#VALUE!															

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13	6
14	24
15	1
16	2
17	2
18	82.76%
19	0.553
20	0.441
21	3.576
22	0.387
23	
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25	
26	vel
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28	vel
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32	0.0956
33	1.218
34	1.217
35	1.23
36	1.473
37	2.007
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41	ce Level
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43	ce Level
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47	3.263
48	0.384
49	32.63
50	0.693
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53	918.7
54	845.4
55	1.147
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62	1.08
63	1.039
64	0.351
65	7.885
66	0.137
67	457.3
68	0.385
69	0.0407
70	406
71	1.217
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81	0.035
82	0.303
83	1.189
84	1.221
85	#VALUE!
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88	1.131
89	1.758
90	#VALUE!
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94	0.0275
95	0.159
96	1.096
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103	1.217
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